

**FINAL ENVIRONMENTAL IMPACT STATEMENT FOR AUTHORIZATION
FOR INCIDENTAL TAKE AND IMPLEMENTATION OF THE STANFORD
UNIVERSITY HABITAT CONSERVATION PLAN**

**APPENDIX G
SUMMARY OF CENTRAL CALIFORNIA COAST
STEELHEAD COLLECTIONS AND OBSERVATIONS IN
THE SAN FRANCISQUITO CREEK WATERSHED**

**Summary of Central California Coast Steelhead Collections and Observations in the San
Francisquito Creek Watershed
Prepared by NOAA National Marine Fisheries Service
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I. Collections

1. Results reported by Darren Fong for fish surveys in Upper West Union Creek in 1996 and 1999.

In 1996, Fong conducted snorkeling surveys in West Union Creek. Surveys were confined to pools because creek levels were too shallow to snorkel other habitat types. Steelhead were observed from multiple age classes, including young-of-the-year (less than 102 mm in fork length), 1+ (ranged between 110 and 146 mm fork length), and 2+ fish (ranged between 158 and 178 mm in fork length). Density of steelhead juveniles ranged from 0.29 fish per meter to 5.42 fish per meter.

In 1999, Fong conducted snorkel surveys and electrofishing surveys on West Union creek. Steelhead young-of-the-year, 1+, and 2+ steelhead were observed. Fong estimated 501 young-of-the-year and 92 older steelhead in pools along Upper West Union Creek. Fong assumed riffle and flatwater habitat had few, if any, steelhead, and did not include these habitats in the analysis.

2. Results reported by A.E. Launer, D. Spain, and G.W. Holtgrieve for Stanford field collections in Los Trancos Creek and San Francisquito Creek between 1997-2000.

Researchers surveyed reaches of San Francisquito Creek and Los Trancos Creek in from 1997 to 2000 using backpack electrofishers and dip nets (Launer and Spain 1998; Launer and Holtgrieve 2000). The stream reaches surveyed primarily consisted of isolated pools where block nets were not required. Minnow traps and hoop net traps were used in non-native hotspots and in deep pools. Fish observed were reported as number of fish encountered per minute. Launer (2010) provided a supplemental report on the data collected by Launer and Spain (1998) and Launer and Holtgrieve (2000) between 1997 and 2000. This supplemental report reanalyzed encounter rates of juvenile steelhead to provide the number of fish per mile of stream sampled. The abundances of fish reported in the Launer 2011, ranged between 0 and 673 fish per mile in San Francisquito Creek, and 92 and 994 fish per mile in Los Trancos Creek.

3. Fish relocation results reported by D.W. Alley and Associates for the Sand Hill Road Bridge and Stanford Golf Cart Crossing construction projects in San Francisquito Creek in 2004.

Fish were captured and relocated as part of construction activities for the Sand Hill Road Bridge and the Stanford Golf Cart Crossing projects in 2004 (D.W. Alley and Associates 2004). Biologists caught and relocated 40 juvenile *O. mykiss* in 230 feet of stream during construction dewatering (June 4-14, 2004) at the Sand Hill Road bridge site and 41 *O. mykiss* within 350 feet of stream (August 30-September 2) at the Golf Cart Bridge Crossing.

4. Fish relocation results reported by Todd Ellwood, CH2MHILL, for the Bear Gulch Creek Station 3 Fish Screen Installation Project in 2007.

Fish were captured and relocated as part of the construction activities for the installation of a fish screen at California Water Services Company Station 3 diversion on Bear Creek. Between October 2 and October 5, biologists relocated 3 steelhead from the dewatered work site (about 25 linear feet). One fish was approximately 2 inches in length and two fish were approximately 5 inches in length.

5. Fish relocation results reported by T. Zigterman for the Stanford Steelhead Habitat Enhancement Plan (SHEP) Project on Los Trancos Creek and San Francisquito Creek in 2009.

Fish were captured and relocated as part of construction activities for upgrades to the fish screen and fish ladder at Stanford's Los Trancos Creek water diversion, and upgrades to the fish screen at the San Francisquito Creek Pumping Plant in 2009 (Zigterman 2011). Biologists caught and relocated 17 *O. mykiss* (50-200 mm) in 120 feet of stream during construction dewatering at the Los Trancos Creek site (June 20-30 and September 29). Biologists caught and relocated 21 *O. mykiss* (less than 200 mm) within 270 feet of stream (July 15-23) at the San Francisquito Creek site.

6. Fish relocation results reported by Patrick Kobernus, Coast Range Ecology, for a bank stabilization project at 125 Fox Hollow Road on Bear Gulch Creek in 2009.

Fish were captured and relocated from the work site (about 1550 linear feet) by electrofishing prior to dewatering and dip nets during dewatering. Between October 10 and October 14, 8 steelhead were captured and relocated from the work site. They ranged in lengths from 83 mm to 110 mm (total length).

7. Fish relocation results reported by A. Launer, for the Portola Valley C-1 Trail bank stabilization project in Los Trancos Creek in 2011.

Fish were captured and relocated as part of construction activities for stabilization of a stream bank and realignment of the C-1 Trail on Los Trancos Creek south of the Westridge Road and Alpine Road intersection (personal communications with A. Launer, Stanford University Conservation Program Manager September 2011). Biologists caught and relocated 39 *O. mykiss* (50 to 300 mm) in 220 feet of stream during construction dewatering at the Los Trancos Creek site (August 24-26, 2011).

8. Fish relocation results reported by L. Wise, for the PG&E gas pipeline repair project in San Francisquito Creek in 2011.

Fish were captured and relocated as part of construction activities for repair of a PG&E natural gas pipeline across San Francisquito Creek near the Junipero Serra Blvd Bridge (Wise 2011). Biologists caught and relocated 5 juvenile *O. mykiss* (78-150 mm) in 85 feet of stream during construction dewatering on September 15, 2011. High stream flows on October 5 caused the

cofferdam system to fail and the block nets to fall, allowing the work site to re-water. Biologists caught and relocated 7 juvenile *O. mykiss* (71-191 mm) in 95 feet of stream during construction dewatering on October 7, 2011.

II. Observations and Secondary Accounts of Steelhead Collections

1. Excerpts from a review of steelhead distributions in the San Francisquito Creek Watershed between 1905 to 2004 conducted by R. Leidy, G. Becker, and B. Harvey.

Leidy et al. (2005) assessed the past and present distribution of *O. mykiss* in streams tributary to the San Francisco Bay using historical and recent records. They reviewed maps depicting historical conditions produced by the San Francisco Estuary Institute, as well as data collected during 1993-1998 surveys by Robert Leidy, and more recent surveys and observations by various Federal, state, and local biologists. Leidy et al. (2005) includes reports of steelhead in San Francisquito Creek from as early as 1905 (Snyder 1905). Other reports cited include accounts of steelhead in portions of San Francisquito, Los Trancos, and Bear creeks on Stanford's lands from 1953 to 2002. Most of the information provided by Leidy et al. (2005) is qualitative, and, while useful in confirming the presence of steelhead in these reaches, provides little information on the abundance or density of steelhead. However, in some instances, Leidy et al. (2005) did provide quantitative information, that was useful in determining the abundance of steelhead in the action area. This information is provided below. A complete record of all of the observations and collections, and references cited by Leidy et al. 2005 is available at the following website address: <http://www.cemar.org/pdf/sanmateoandsanfrancisco.pdf>.

San Francisquito Creek

*In July 1976, DFG visually surveyed San Francisquito Creek from the confluence with Bear Creek to the mouth. Staff cited severe drought conditions as resulting in low *O. mykiss* abundance (only ten YOY [young of the year] steelhead were observed) (Cogger et al. 1976d).*

Later that month, DFG electrofished four sites on San Francisquito Creek [and observed] eight steelhead ranging from 43 to 147 mm were found in the vicinity of Junipero Serra Boulevard (Cogger et al. 1976a).

*San Francisquito Creek was sampled at five locations in August 1981 as part of a fish distribution study. Two *O. mykiss* (51, 73 mm) were collected near Alpine Road (Leidy 1984). Four downstream locations (three consisting of intermittent pools) did not appear to contain *O. mykiss*.*

*Leidy electrofished San Francisquito Creek upstream from the Los Trancos Creek confluence in January 1994 [and did not observe] *O. mykiss*. However, in September 1994, he caught a 212 mm FL *O. mykiss* while sampling a 30-meter reach below Sand Hill Road (Leidy 2002).*

In 1998, SCVWD staff rescued O. mykiss from the lower reach during dewatering of the channel (J. Abel pers.comm.).

In May 2002, photographs were taken of two adult steelhead (~630 mm) in lower San Francisquito Creek. (Stoecker 2002).

Los Trancos Creek

The Department of Fish and Game electrofished three Los Trancos Creek sites in July 1976. At the lowermost Los Trancos Road crossing[.] [A] 300-meter reach produced 46 O. mykiss (38-236 mm FL), and YOY were numerous (Cogger et al. 1976b).

According to a 1979 DFG letter, sampling was performed on Los Trancos Creek under the I-280 bridge in June 1978. At that time, 412 YOY[young of the year] O. mykiss were found in the plunge pools of the fish passage weirs (Paulsen 1979).

Three sites on Los Trancos Creek were sampled in 1981 as part of a fish distribution study. Three-year classes of O. mykiss appeared to be represented in a 20 meter isolated pool immediately downstream of Arastradero Road. Fish collected included five O. mykiss measuring 71-92 mm FL and two larger individuals (190, 335 mm). Surveys at two downstream locations (at Westridge Drive and upstream from Interstate 280) and one upstream location (at the second Los Trancos Road crossing) revealed no O. mykiss (Leidy 1984).

In January and September 1994, Leidy electrofished a reach of Los Trancos Creek just upstream from the San Francisquito Creek confluence. He caught four O. mykiss (68, 68, 89, 90 mm FL) in January and estimated density at 10 per 30 meters (Leidy 2002). In September, he caught five O. mykiss (65–90 mm) and estimated density at 20 per 30 meters. In June 1998, Leidy electrofished Los Trancos Creek approximately 325 feet upstream from Pleasant Hill Road. No O. mykiss were found (Leidy 2002).

Bear Creek

In June 1976, DFG visually surveyed Bear Creek between its mouth and headwaters at the confluence of West Union and Bear Gulch Creeks. The Department of Fish and Game found about 150 O. mykiss fingerlings, despite severe drought conditions in that year (Cogger et al. 1976c). In July 1976, DFG followed up the stream survey on Bear Creek with an electrofishing survey. A total of 36 O. mykiss (41-211 mm) were sampled from sites upstream of Sand Hill Road and upstream of Mountain Home Road (Cogger et al. 1976a).

In June 1978, DFG electrofished Bear Creek at Sand Hill Road and at Mountain Home Road, two O. mykiss (81 and 97 mm FL) were caught and measured, while

50-75 YOY and three larger individuals (~125 mm) were observed but could not be captured due to faulty equipment (Torres and Paulsen 1978).

*In August 1979, DFG electrofished Bear Creek at Mountain Home Road, three *O. mykiss* (170, 188, and 216 mm FL) and 82 YOY (51-104 mm) were collected. The Department of Fish and Game noted an apparent lack of age 1+ fish and attributed it to a lack of recruitment in 1978 (Anderson 1979).*

*In 1984, an isolated pool 0.2 miles downstream from Adobe Corner was sampled as part of a fish distribution study. Five *O. mykiss* (59-111 mm) were found in a ten-meter reach (Leidy 1984).*

An adult steelhead was observed in Bear Creek in 1995 (685 mm) and in 1998 (760 mm), respectively (M. Stoecker pers. comm.).

2. A summary of steelhead observations made by Matt Stoecker in the San Francisquito Creek Watershed between 1999 and 2001.

Matt Stoecker (2002) conducted visual surveys in many stream reaches of the San Francisquito Creek watershed between 1999 and 2001. Stoecker (2002) reported observations qualitatively for most streams, and estimated the size of adult steelhead when they were observed. These observations provide presence/absence data for steelhead in many streams where steelhead monitoring has never occurred. The results of these observations show that steelhead occur throughout the Corte Madera, West Union, Bear, and Los Trancos creeks sub-watersheds. Stoecker also observed *O. mykiss* upstream of Searsville Reservoir in the Corte Madera Creek sub-watershed.

3. Results of juvenile steelhead/rainbow trout (*Oncorhynchus mykiss*) surveys in Los Trancos Creek in 2002 conducted by D. Vogel.

Snorkeling and walking surveys were conducted in Los Trancos Creek during the late winter and spring of 2002 (Vogel 2002). Surveys were performed three times during the late winter and spring. The stream reach surveyed began at the confluence of San Francisquito Creek and Los Trancos Creek and ended 1.6 miles upstream from Stanford's Los Trancos Diversion Facility. The entire survey length was 3.9 miles. Researchers estimated juvenile steelhead densities of 247 (March), 375 (April), and 945 (May) fish per survey reach. Newly emerged fry contributed to a large number of steelhead (945) observed in the May survey. Researchers observed 11 redds and 8 "possible" redds in the reach surveyed.

4. Results of spawning habitat surveys conducted by the Santa Clara Valley Water District in San Francisquito and Los Trancos creeks between March - April 2003.

Los Trancos Creek was walked by Santa Clara Valley Water District (SCVWD) personnel between March 14, 2003, and March 27, 2003 (SCVWD 2004). The surveys began at the confluence of San Francisquito Creek and Los Trancos Creek and ended about 5 miles upstream of the confluence. Researchers observed three redds. Surveyors did not quantitatively assess the

abundance of juvenile steelhead in Los Trancos Creek, but observed steelhead in “varying numbers” throughout the survey reaches, with the highest observed juvenile densities in mid reaches.

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